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WHAT IS CLAIMED IS:

1. An apparatus for protecting an object from impact comprising:
an expandable cellular structure disposed between a first surface and a second surface,
5 said first surface being hingedly attached to said object;
said expandable cellular structure comprising a plurality of cells, each of said plurality
of cells having a plurality of cell walls and a plurality of joints;
said plurality of cell walls being constructed from a first material; and
said plurality of joints being constructed from a second material different from said
10 first material;
wherein said apparatus is configured to be deployed prior to an impact upon said
object.
2. The apparatus of claim 1 wherein said object is one of the inside and the outside of a
15 motor vehicle.
3. The apparatus of claim 1 wherein said first material comprises one of metal, laminated
material, fiber reinforced material, and plastic.
- 20 4. The apparatus of claim 1 wherein said second material comprises one of fiberglass
and poly-paraphenylene terephthalamide (KEVLAR).
5. The apparatus of claim 1 wherein said cell walls are tapered.
- 25 6. The apparatus of claim 1 wherein said expandable cellular structure is linearly
deployed.
7. The apparatus of claim 1 wherein said expandable cellular structure is radially
deployed.
- 30 8. The apparatus of claim 1 further comprising a flexible cover, wherein said flexible
cover is configured to receive a projectile.

9. The apparatus of claim 1 further comprising a flexible cover, wherein said apparatus serves as a floatation device.
10. An apparatus for protecting an object from impact comprising:
5 an expandable cellular structure disposed between a first surface and a second surface, said first surface being hingedly attached to said object;
said expandable cellular structure comprising a plurality of cell walls and a plurality of cell joints; and
each of said plurality of cell walls having a maximum thickness, said maximum
10 thickness being greater than a thickness of each of said plurality of cell joints;
wherein said apparatus is configured to be deployed prior to an impact upon said object.
11. The apparatus of claim 10 wherein said object is one of the inside and the outside of a
15 motor vehicle.
12. The apparatus of claim 10 wherein said cell walls comprise one of metal, laminated material, fiber reinforced material, and plastic.
- 20 13. The apparatus of claim 10 wherein said cell joints comprise one of fiberglass and poly-paraphenylene terephthalamide (KEVLAR).
14. The apparatus of claim 10 wherein said cell walls are tapered.
- 25 15. The apparatus of claim 10 wherein said expandable cellular structure is linearly deployed.
16. The apparatus of claim 10 wherein said expandable cellular structure is radially
30 deployed.
17. The apparatus of claim 10 further comprising a flexible cover, wherein said flexible cover is configured to receive a projectile.

18. The apparatus of claim 10 further comprising a flexible cover, wherein said apparatus serves as a floatation device.
19. An apparatus for protecting an object from impact comprising:
5 an expandable cellular structure comprising a plurality of cell walls and a plurality of cell joints;
said expandable cellular structure being disposed between a first surface and a second surface, at least one of said first surface and said second surface being attached to said object with an attachment; and
10 said cell walls being substantially more rigid than said cell joints;
wherein said apparatus is configured to be deployed prior to an impact upon said object.
20. The apparatus of claim 19 wherein said object is one of the inside and the outside of a
15 motor vehicle.
21. The apparatus of claim 19 wherein said cell walls comprise one of metal, laminated material, fiber reinforced material, and plastic.
- 20 22. The apparatus of claim 19 wherein said cell joints comprise one of fiberglass and poly-paraphenylene terephthalamide (KEVLAR).
23. The apparatus of claim 19 wherein said cell walls are tapered.
- 25 24. The apparatus of claim 19 wherein said expandable cellular structure is linearly deployed.
25. The apparatus of claim 19 wherein said expandable cellular structure is radially
30 deployed.
26. The apparatus of claim 19 further comprising a flexible cover, wherein said flexible cover is configured to receive a projectile.
27. The apparatus of claim 19 wherein said attachment comprises a hinge.

28. The apparatus of claim 19 further comprising a flexible cover, wherein said apparatus serves as a floatation device.
- 5 29. An apparatus for protecting an object from impact comprising:
an expandable cellular structure disposed between a first surface and a second surface,
said first surface being attached to said object with an attachment;
said expandable cellular structure comprising a plurality of cell walls and a plurality
of cell joints;
10 said plurality of cell walls comprising at least one of metal, plastic, poly-
paraphenylene terephthalamide (KEVLAR), reinforced paper, resin impregnated paper,
laminate, and fiber reinforced material; and
said plurality of cell joints comprising at least one of fiberglass and poly-
paraphenylene terephthalamide (KEVLAR);
15 wherein said apparatus is configured to be deployed prior to an impact upon said
object.
30. The apparatus of claim 29 wherein said object is one of the inside and the outside of a
motor vehicle.
- 20 31. The apparatus of claim 29 wherein said cell walls are tapered.
32. The apparatus of claim 29 wherein said expandable cellular structure is linearly
deployed.
- 25 33. The apparatus of claim 29 wherein said expandable cellular structure is radially
deployed.
34. The apparatus of claim 29 further comprising a flexible cover, wherein said flexible
30 cover is configured to receive a projectile.
35. The apparatus of claim 29 wherein said attachment comprises a hinge.

36. The apparatus of claim 29 further comprising a flexible cover, wherein said apparatus serves as a floatation device.